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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/929,821	08/14/2001	I-Fan Wang	USFFILJ21A	8832

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EXAMINER

MENON, KRISHNAN S

ART UNIT	PAPER NUMBER
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1723

DATE MAILED: 09/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/929,821

Applicant(s)

WANG ET AL.

Examiner

Krishnan S Menon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) 16-42 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 0802. 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-15, drawn to cellulosic membranes and using the membrane, classified in class 210, subclass 500.29.
- II. Claims 16-39, drawn to method of preparing membranes, classified in class 156, subclass 246.
- III. Claims 40-42, drawn to method of separating protein from liquid, classifies in class 99, subclass 452.

The inventions are distinct, each from the other because of the following reasons:

Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the process as claimed can be used make other materially different product like a reverse osmosis membrane or moisture permeable packaging.

Inventions I and III are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the cellulosic membrane can be used for materially different processes like water treatment, effluent treatment, etc.

Inventions II and III are related as process of making a product and process of using the product. Since the process of making is distinct from the product made, and the product as claimed could be used for a materially different process, restriction between groups II and III is proper (MPEP § 806.05(i)).

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group II is not required for Group I, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group III is not required for Group II, restriction for examination purposes as indicated is proper.

During a telephone conversation with Rose Thiessen, attorney of record, on 9/4/03 a provisional election was made without traverse to prosecute the invention of I, claims 1-15. Affirmation of this election must be made by applicant in replying to this Office action. Claims 16-42 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

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Applicant is reminded that since the product claims are elected, process claims would be allowable if product claims are found allowable and if the process claims contain all the limitations or are dependent on the product claims.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 12 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 and 13 recites the limitation "cellulose". There is insufficient antecedent basis for this limitation in the claim. Since claim 11 recites "cellulose", Examiner considers these claims to be depending from claim 11 for examination purpose.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-4 and 8 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Wang et al (US6,045,899).

Wang teaches a cellulosic membrane as in claims 1-3 as follows:

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Claim 1: A cellulosic membrane, the membrane cast from a dope comprising a cellulosic polymer and a solvent (col 4 lines 30-35), the membrane having a first porous face having a first average pore diameter, a second porous face having a second average pore diameter, and a porous supporting structure therebetween wherein the supporting structure comprises a reticulated network of flow channels, the first and second average pore diameters having an asymmetry of at least about 2:1, and wherein the porous faces and the porous supporting structure comprise a network of structural surfaces capable of contacting a filter stream (col 3 lines 9-26, col 5 line 65-col 6 line 34).

Claim 2: The membrane of Claim 1, wherein the asymmetry between the average pore diameters of the first porous face and the second porous face is at least about 5:1. (Col 6 lines 30-34)

Claim 3. The membrane of Claim 1, wherein the asymmetry between the average pore diameters of the first porous face and the second porous face is at least about 10:1. (Col 6 lines 30-34)

Claim 4. The membrane of Claim 1, wherein the asymmetry between the average pore diameters of the first porous face and the second porous face is at least about 20:1. (Col 6 lines 30-34)

Claim 8. The membrane of Claim 1, wherein the cellulosic polymer comprises a cellulose ester. (col 4 lines 30-34)

2. Claims 14 and 15 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by, or in the alternative, under 35 USC 103(a) as unpatentable over, Wang et al (US 6,045,899).

Wang teaches all the limitations of claim 1 as above, claims 14 and 15 add further limitations as follows:

Claim 14. The membrane of Claim 1, wherein the dope comprises a dispersion of the cellulosic polymer in the solvent.

Claim 15. The membrane of Claim 1, wherein the dope comprises a homogeneous solution of the cellulosic polymer in the solvent.

These limitations are related to process. “[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” In re *Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

3. Claims 1-15 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by, or in the alternative, under 35 USC 103(a) as unpatentable over, Del Pico (US 3,762,566).

Del Pico teaches cellulosic ultrafiltration membranes as in the instant claims as follows:

Claim 1: A cellulosic membrane, the membrane cast from a dope comprising a cellulosic polymer and a solvent (col 2 line 52 – col 4 line 67), the membrane having a first porous face having a first average pore diameter, a second porous face having a second average pore diameter, and a porous supporting structure therebetween wherein the supporting structure comprises a reticulated network of flow channels (col 4 lines 4-20, lines 38-66).

Del Pico does not specify ‘the first and second average pore diameters having an asymmetry of at least about 2:1, the asymmetry between the average pore diameters of the first porous face and the second porous face is at least about 5:1. (claim 2); 10:1 (claim 3); 20:1 (claim 4)’. However, since the membrane of Del Pico is similar to the membrane of the instant claims, and describes a similar

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structure (col 4 lines 5-65), the physical properties also should be inherently similar. Where applicant claims a composition in terms of a function, property or characteristic and the composition of the prior art is the same as that of the claim but the function is not explicitly disclosed by the reference, the examiner may make a rejection under both 35 U.S.C. 102 and 103, expressed as a 102/103 rejection. "There is nothing inconsistent in concurrent rejections for obviousness under 35 U.S.C. 103 and for anticipation under 35 U.S.C. 102." In re Best, 562 F.2d 1252, 1255 n.4, 195 USPQ 430, 433 n.4 (CCPA 1977). This same rationale should also apply to product, apparatus, and process claims claimed in terms of function, property or characteristic. Therefore, a 35 U.S.C. 102/103 rejection is appropriate for these types of claims as well as for composition claims.

Claim 5. The membrane of Claim 4, wherein the membrane has a molecular weight cut-off ranging from about 10k Daltons to about 300k Daltons (col 7 lines 15-25).

Claim 6. The membrane of Claim 4, wherein the membrane has a molecular weight cut-off ranging from about 10k Daltons to about 50k Daltons. (col 7 lines 15-25).

Claim 7: The membrane of Claim 4, wherein the membrane has a molecular weight cut-off ranging from about 10k Daltons to about 30k Daltons. (col 7 lines 15-25).

Claim 8. The membrane of Claim 1, wherein the cellulosic polymer comprises a cellulose ester. (col 6 lines 30-40; col 8 lines 23-26)

Claim 9. The membrane of Claim 1, wherein the cellulose ester comprises a cellulose acetate (col 6 lines 30-40)

Claim 10. The membrane of Claim 1, wherein the cellulose acetate is selected from the group consisting of cellulose diacetate, cellulose triacetate, cellulose acetate butyrate, cellulose acetate propionate, cellulose nitrate, methyl cellulose, and mixtures thereof (col 6 lines 30-40)



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Claim 11. The membrane of Claim 1, wherein the cellulosic polymer on a surface of the membrane comprises cellulose. (col 6 lines 30-40)

Claim 12. The membrane of Claim 1, wherein the cellulose is produced via hydrolyzation of the membrane: [product by process: In re Thorpe] (col 6 lines 30-40)

Claim 13. The membrane of Claim 1, wherein the cellulose is produced via saponification of the membrane [product by process: In re Thorpe].

Claim 14. The membrane of Claim 1, wherein the dope comprises a dispersion of the cellulosic polymer in the solvent. (col 8 lines 23-26)

Claim 15. The membrane of Claim 1, wherein the dope comprises a homogeneous solution of the cellulosic polymer in the solvent. (col 8 lines 23-26)


### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S Menon whose telephone number is 703-305-5999. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 703-308-0457. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Krishnan Menon  
Patent Examiner

  
W. L. WALKER  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700